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PART IV:

# ENVIRONMENTAL PROTECTION AGENCY

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## PESTICIDE CHEMICALS

### Manufacturing Point Source Category

Title 40—Protection of the Environment

CHAPTER I—ENVIRONMENTAL PROTECTION AGENCY

SUBCHAPTER N—EFFLUENT LIMITATIONS AND GUIDELINES

[FRL 637-5]

## PART 455—PESTICIDES CHEMICALS MANUFACTURING POINT SOURCE CATEGORY

### Interim Final Rule Making

Notice is hereby given that effluent limitation guidelines for existing sources to be achieved by the application of best practicable control technology currently available as set forth in interim final form below are promulgated by the Environmental Protection Agency (EPA). The regulation set forth below establishes Part 455—pesticides chemicals manufacturing point source category and will be applicable to existing sources for the halogenated organic pesticides subcategory (Subpart A); the organo-phosphorous pesticides subcategory (Subpart B); the organo-nitrogen pesticides subcategory (Subpart C); the metallo-organic pesticides subcategory (Subpart D); and the pesticide formulators and packagers subcategory (Subpart E) of the pesticides chemicals manufacturing point source category, pursuant to sections 301 and 304 of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1311, 1314 and 86 Stat. 816 et seq.; P.L. 92-500) ("the Act").

The report entitled "Development Document for Interim Final Effluent Limitations and Guidelines for the Pesticides Chemicals Manufacturing Point Source Category" details the analysis undertaken in support of the interim final regulations set forth herein. It is available for inspection in the EPA Public Information Reference Unit, Room 2922 (EPA Library), Waterside Mall, 401 M St. SW., Washington, D.C. 20460, at all EPA regional offices, and at State water pollution control offices. A supplementary analysis prepared for EPA of the possible economic effects of the regulation is also available for inspection at these locations. Copies of both documents are being sent to persons or institutions affected by the proposed regulation or who have placed themselves on a mailing list for this purpose (see EPA's Advance Notice of Public Review Procedures, 38 F.R. 21202, August 6, 1973). An additional limited number of copies of both reports are available. Persons wishing to obtain a copy may write the Environmental Protection Agency, Effluent Guidelines Division, Washington, D.C. 20460, Attention: Distribution Officer, WH-552.

When this regulation is promulgated in final rather than interim final form, revised copies of the Development Document will be available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Copies of the economic analysis document will be available through the National Technical Information Service, Springfield, VA 22151.

Prior to this publication, many agencies and groups were consulted and given the opportunity to participate in the development of these limitation guidelines. All participating agencies have been informed of project developments. An initial draft of the Development Document was sent to all participants and comments were solicited on that report. A summary of these comments and the Agency's response and consideration of these is contained in Appendix C to this preamble.

The Agency has studied the economic and inflationary impact of these regulations and has made the following estimates. Of the 128 pesticide manufacturers 22 are direct dischargers. Ten of these plants currently have pollution treatment systems installed that will achieve the effluent limitations, with the remaining 12 plants incurring some additional treatment costs. The total investment required to meet the limitations is $33.2 million with annual costs of $10.2. A preliminary estimate of the economic impact assumed that there was no treatment systems currently installed at the affected plants. This analysis indicated that the majority of pesticides would have price increases of less than 2.2 percent. A small group of products had the potential of causing a plant to incur treatment costs of up to 18 percent of selling price, that could cause a plant to severely curtail or stop production of these products. This analysis was followed by a consideration of the treatment costs likely to be incurred at the individual plants. It was determined that the majority of direct discharging plants had treatment systems in place or will need to install less than one half of the complete treatment system. Only a few plants will need to install most of the system. It is expected that the necessary treatment system will be installed at these plants and the changes in price or production levels of most products would be insignificant. For those few plants that must install a fairly large portion of the treatment system there remains the potential for substantial price increases and curtailment of production of certain low priced pesticides. The aggregate impact on formulators is expected to be small since no direct dischargers have been identified; however, the analysis has not been performed for the individual formulators.

The Agency is considering the extension of coverage of effluent limitation guidelines, including new source standards of performance and other existing source regulations for segments of the industry that have been reserved at this time. These include the s-triazine type herbicide compounds and the zinc, manganese, and tin metallo-organic pesticides. The Agency anticipates that the technical and economic reviews of these aspects of the industry will be completed soon, and that proposed amendments will be published in the near future.

The Agency is subject to an order of the United States District Court for the District of Columbia entered in *Natural Resources Defense Council* v. *Train* et al. (Cv. No. 1609-73), which requires the promulgation of regulations for this point source category. This order also requires that such regulations become effective immediately upon publication.

It has not been practicable to develop and publish regulations for this category in proposed form, to provide a comment period, and to make revisions within the time constraints imposed by the court order referred to above. Accordingly, the Agency has determined pursuant to 5 USC § 553(b) that notice and comment on the interim final regulations would be impracticable and contrary to the public interest. Good cause is also found for these regulations to become effective immediately upon publication.

Interested persons are encouraged to submit written comments. Comments should be submitted in triplicate to the Environmental Protection Agency, 401 M St. S.W., Washington, D.C., 20460, Attention: Distribution Officer, WH-552. Comments on all aspects of the regulation are solicited. In the event comments are in the nature of criticisms as to the adequacy of data available or relied upon by the Agency, comments should identify and, if possible, provide any additional data which may be available. They also should indicate why such data warrant amendment or modification of the regulation. In the event comments address the approach taken by the Agency in establishing an effluent limitation guideline, EPA solicits suggestions as to what alternative approach should be taken and why this alternative better satisfies the detailed requirements of sections 301 and 304 of the Act.

A copy of all public comments will be available for inspection and copying at the EPA Public Information Reference Unit, Room 2922 (EPA Library), Waterside Mall, 401 M Street, S.W., Washington, D.C. 20460. A copy of preliminary draft contractor reports, the Development Document and economic study referred to above, and certain supplementary materials supporting the study of the industry concerned will also be maintained at this location for public review and copying. The EPA information regulation, 40 CFR Part 2, provides that a reasonable fee may be charged for copying.

All comments received within sixty days of publication of this interim final regulation in the FEDERAL REGISTER will be considered. Steps previously taken by the Environmental Protcetion Agency to facilitate public response within this time period are outlined in the advance notice concerning public review procedures published on August 6, 1973 (38 FR 21202). In the event that the final regulation differs substantially from the interim final regulation set forth herein the Agency will consider petitions for reconsideration of any permits issued in accordance with these interim final regulations.

In consideration of the foregoing, 40 CFR Part 454 is hereby established as set forth below.

Dated: October 18, 1976.

JOHN QUARLES,
*Acting Administrator.*

Sec.
455 General definitions.

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AUTHORITY: Secs. 301 and 304, Federal Water Pollution Control Act, as amended (33 U.S.C. 1311, 1314, 86 Stat. 816 et. seq.; Pub. L. 92-500) ("the Act").

## § 455 General definitions.

As used in this part:

(1) "Pesticides" means any substance or mixture of substances produced for preventing, destroying or repelling, any animal or plant pest.

(2) "Organic pesticides" means carbon-containing substances used as pesticides, excluding metallo-organic compounds.

(3) "Metallo-organic pesticides" means a class of organic pesticides containing one or more metal or metalloid atoms in the structure.

(4) "Total pesticides" means the sum of all pesticides manufactured at each facility covered by this part, including any pesticides registered with the Agency under the Federal Insecticide, Fungicide and Rodenticides Act, (FIFRA), Public Law 92-516 as amended by Public Law 94-140), whether or not those materials are intended for interstate commerce.

(5) "Development document" means the document entitled "Development Document for Interim Final Effluent Limitation and Guidelines for the Pesticide Chemicals Manufacturing Point Source Category".

(6) "NH3-N" means ammonia nitrogen.

(7) Except as provided in this regulation, the general definitions, abbreviations and methods of analysis set forth in Part 401 of this chapter shall apply to this part.

### Subpart A—Halogenated Organic Pesticides Subcategory

## § 455.10 Applicability; description of the manufacture of halogenated organic pesticides subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of halogenated organic pesticides; such pesticides include but are not limited to the representation in Section X of the development document.

## § 455.11 [Reserved]

## § 455.12 Effluent limitations and guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

In establishing the limitations set forth in this section, EPA took into account all information it was able to collect, develop and solicit with respect to factors (such as age and size of plant, raw materials, manufacturing processes, products produced, treatment technology available, energy requirements and costs) which can affect the industry subcategorization and effluent levels established. It is, however, possible that data which would affect these limitations have not been available and, as a result, these limitations should be adjusted for certain plants in this industry. An individual discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue NPDES permits) that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. On the basis of such evidence or other available information, the Regional Administrator (or the State) will make a written finding that such factors are or are not fundamentally different for that facility compared to those specified in the Development Document. If such fundamentally different factors are found to exist, the Regional Administrator or the State shall establish for the discharger effluent limitations in the NPDES permit either more or less stringent than the limitations established herein, to the extent dictated by such fundamentally different factors. Such limitations must be approved by the Administrator of the Environmental Protection Agency. The Administrator may approve or disapprove such limitations, specify other limitations, or initiate proceedings to revise these regulations.

(a) The following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this paragraph, which may be discharged from the manufacture of halogenated organic pesticides by a point source subject to the provisions of this paragraph after application of the best practicable control technology currently available:

| Effluent characteristic | Effluent limitations: Maximum for any 1 day | Effluent limitations: Average of daily values for 30 consecutive days shall not exceed— |
|---|---|---|
| Metric units (kilograms per 1,000 kg of product) English units (pounds per ton of product) | | |
| COD | 30.7 | 21.2 |
| BOD5 | 15.2 | 8.7 |
| TSS | 9.0 | 6.3 |
| phenol | 0.0048 | 0.0017 |
| Total pesticides | 0.0062 | 0.0031 |
| pH | Within the range 6.0 to 9.0. | |

### Subpart B—Organo-Phosphorus Pesticides Subcategory

## § 455.20 Applicability; description of the manufacture of organo-phosphorus pesticides subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of organo-phosphorus pesticides; such pesticides include but are not limited to the representation in Section X of the development document.

## § 455.21 [Reserved]

## § 455.22 Effluent limitations and guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

In establishing the limitations set forth in this section, EPA took into account all information it was able to collect, develop and solicit with respect to factors (such as age and size of plant, raw materials, manufacturing processes, products produced, treatment technology available, energy requirements and costs) which can affect the industry subcategorization and effluent levels established. It is, however, possible that data which would affect these limitations have not been available and, as a result, these limitations should be adjusted for certain plants in this industry. An individual discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue NPDES permits) that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. On the basis of such evidence or other available information, the Re-

gional Administrator (or the State) will make a written finding that such factors are or are not fundamentally different for that facility compared to those specified in the Development Document. If such fundamentally different factors are found to exist, the Regional Administrator or the State shall establish for the discharger effluent limitations in the NPDES permit either more or less stringent than the limitations established herein, to the extent dictated by such fundamentally different factors. Such limitations must be approved by the Administrator of the Environmental Protection Agency. The Administrator may approve or disapprove such limitations, specify other limitations, or initiate proceedings to revise these regulations.

(a) The following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this paragraph, which may be discharged from the manufacture of organo-phosphorous pesticides by a point source subject to the provisions of this paragraph after application of the best practicable control technology currently available:

| Effluent characteristic | Effluent limitations: Maximum for any 1 day | Effluent limitations: Average of daily values for 30 consecutive days shall not exceed— |
|---|---|---|
| Metric units (kilograms per 1,000 kg of product) English units (pounds per ton of product) | | |
| COD | 17.3 | 11.9 |
| $BOD_5$ | 2.6 | 1.5 |
| TSS | 10.1 | 7.0 |
| $NH_3$-N | 5.1 | 4.4 |
| Total pesticides | 0.0039 | 0.0018 |
| pH | Within the range 6.0 to 9.0. | |

## Subpart C—Organo-Nitrogen Pesticides Subcategory

### § 455.30 Applicability; description of the manufacture of organo-nitrogen pesticides subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of organo-nitrogen pesticides except the production of s-triazines and their derivatives; such pesticides include but are not limited to the representation in Section X of the development document.

### § 455.31 [Reserved]

### § 455.32 Effluent limitations and guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

In establishing the limitations set forth in this section, EPA took into account all information it was able to collect, develop and solicit with respect to factors (such as age and size of plant, raw materials, manufacturing processes, products produced, treatment technology available, energy requirements and costs) which can affect the industry subcategorization and effluent levels established. It is, homever, possible that data which would affect these limitations have not been available and, as a result, these limitations should be adjusted for certain plants in this industry. An individual discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue NPDES permits) that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. On the basis of such evidence or other available information, the Regional Administrator (or the State) will make a written finding that such factors are or are not fundamentally different for that facility compared to those specified in the Development Document. If such fundamentally different factors are found to exist, the Regional Administrator or the State shall establish for the discharger effluent limitations in the NPDES permit either more or less stringent than the limitations established herein, to the extent dictated by such fundamentally different factors. Such limitations must be approved by the Administrator of the Environmental Protection Agency. The Administrator may approve or disapprove such limitations, specify other limitations, or initiate proceedings to revise these regulations.

(a) The following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this paragraph, which may be discharged from the manufacture of organo-nitrogen pesticides by a point source subject to the provisions of this paragraph after application of the best practicable control technology currently available:

| Effluent characteristic | Effluent limitations: Maximum for any 1 day | Effluent limitations: Average of daily values for 30 consecutive days shall not exceed— |
|---|---|---|
| Metric units (kilograms per 1,000 kg of product) English units (pounds per ton of product) | | |
| COD | 30.4 | 21.1 |
| $BOD_5$ | 15.1 | 8.6 |
| TSS | 13.6 | 9.5 |
| $NH_3$-N | 5.7 | 4.9 |
| Total pesticides | 0.016 | 0.0071 |
| pH | Within the range 6.0 to 9.0. | |

## Subpart D—Metallo-Organic Pesticides Subcategory

### § 455.40 Applicability; description of the manufacture of metallo-organic pesticides subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of metallo-organic pesticides containing mercury, cadmium, arsenic or copper; such pesticides include but are not limited to the representation in Section X of the development document.

### § 455.41 [Reserved]

### § 455.42 Effluent limitations and guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

In establishing the limitations set forth in this section, EPA took into account all information it was able to collect, develop and solicit with respect to factors (such as age and size of plant, raw materials, manufacturing processes, products produced, treatment technology available, energy requirements and costs) which can affect the industry subcategorization and effluent levels established. It is, however, possible that data which would affect these limitations have not been available and, as a result, these limitations should be adjusted for certain plants in this industry. An individual discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue NPDES permits) that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. On the basis of such evidence or other available information, the Regional Administrator (or the State) will make a written finding that such factors are or are not fundamentally different for that facility compared to those specified in the Development Document. If such fundamentally different factors are found to exist. The Regional Administrator or the State shall establish for the discharger effluent limitations in the NPDES permit either more or less stringent than the limitations established herein, to the extent dictated by such fundamentally different factors. Such limitations must be approved by the Administrator of the Environmental Protection Agency. The Adminstrator may approve or disapprove such limitations, specify other limitations, or initiate proceedngs to revise these regulations.

(a) The following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this paragraph, which may be discharged from the manufacture of metallo-organic pesticides by a point source subject to the provisions of this paragraph after application of the best practicable control technology currently available: There shall be no discharge of process wastewater pollutants to navigable waters.

## Subpart E—Pesticide Formulators and Packagers Subcategory

### § 455.50 Applicability; description of the pesticide formulators and packagers subcategory.

The provisions of this subpart are applicable to discharges resulting from the pesticide formulators and packagers; such pesticides include but are not limited to the representation in Section X of the development document.

§ 455.51 [Reserved]

§ 455.52 Effluent limitations and guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

In establishing the limitations set forth in this section, EPA took into account all information it was able to collect, develop and solicit with respect to factors (such as age and size of plant, raw materials, manufacturing processes, products produced, treatment technology available, energy requirements and costs) which can affect the industry subcategorization and effluent levels established. It is, however, possible that data which would affect these limitations have not been available and, as a result, these limitations should be adjusted for certain plants in this industry. An individual discharger or other interested person may submit evidence to the Regional Administrator (or to the State, if the State has the authority to issue NPDES permits) that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the guidelines. On the basis of such evidence or other available information, the Regional Administrator (or the State) will make a written finding that such factors are or are not fundamentally different for that facility compared to those specified in the Development Document. If such fundamentally different factors are found to exist, the Regional Administrator or the State shall establish for the discharger effluent limitations in the NPDES permit either more or less stringent than the limitations established herein, to the extent dictated by such fundamentally different factors. Such limitations must be approved by the Administrator of the Environmental Protection Agency. The Administrator may approve or disapprove such limitations, specify other limitations, or initiate proceedings to revise these regulations.

(a) The following limitations establish the quantity or quality of pollutants or pollutant properties, controlled by this paragraph, which may be discharged from the manufacture of products from pesticide formulators and packagers by a point source subject to the provisions of this paragraph after application of the best practicable control technology currently available: There shall be no discharge of process wastewater pollutants to navigable waters.

APPENDIX A

LEGAL AUTHORITY

(1) Existing point sources.

Section 301(b) of the Act requires the achievement by not later than July 1, 1977, of effluent limitations for point sources, other than publicly owned treatment works, which require the application of the best practicable control technology currently available as defined by the Administrator pursuant to section 304(b) of the Act.

Section 304(b) of the Act requires the Administrator to publish regulations providing guidelines for effluent limitations setting forth the degree of effluent reductions attainable through the application of the best practicable control technology currently available. The regulation herein sets forth effluent limitations and guidelines, pursuant to sections 301 and 304(b) of the Act, for the halogenated organic pesticides subcategory (Subpart A); the organ-ophosphorous pesticides subcategory (Subpart B); the organonitrogen pesticides subcategory (Subpart C); the metallo-organic pesticides subcategory (Subpart D); and the pesticide formulators and packagers subcategory (Subpart E) of the pesticides chemicals manufacturing point source category.

Section 304(c) of the Act requires the Administrator to issue to the States and appropriate water pollution control agencies information on the processes, procedures or operating methods which result in the elimination or reduction of the discharge of pollutants to implement standards of performance under section 306 of the Act. The report or "Development Document" referred to below provides, pursuant to section 304(c) of the Act, information on such processes, procedures or operating methods.

APPENDIX B

TECHNICAL SUMMARY AND BASIS FOR REGULATIONS

This Appendix summarizes the basis of interim final effluent limitations and guidelines for existing sources.

(1) General methodology.

The effluent limitation guidelines set forth herein were developed in the following manner. The point source category was first studied for the purpose of determining whether separate limitations are appropriate for different segments within the category. This analysis included a determination of whether differences in raw material used, product produced, manufacturing process employed, age, size, wastewater constituents and other factors require development of separate limitations for different segments of the point source category. The raw waste characteristics for each such segment were then identified. This included an analysis of the source, flow and volume of water used in the process employed, the sources of waste and wastewaters in the operation and the constituents of all wastewaters. The constituents of the wastewaters which should be subject to effluent limitations were identified.

The existing control and treatment technologies within each segment were examined. This included an identification of each distinct control and treatment technology, including both in-plant and end-of-process technologies, which exists or is capable of being designed for each segment. It also included an identification of, in terms of the amount of constituents and the chemical, physical, and biological characteristics of pollutants, the effluent level resulting from the application of each of the technologies. The problems with each treatment and control technology also were noted. In addition, the nonwater quality environmental impact, such as the effects of the application of these technologies upon other pollution problems, including air and solid waste, were examined. The general environmental benefits which will accrue as a result of publication of these regulations were also considered. The energy requirements of each control and treatment technology were determined as well as the cost of the application of such technologies.

The information outlined above was then evaluated in order to determine what levels of technology constitute the "best practicable control technology currently available." In identifying such technologies, various factors were considered. These included the total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application, the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, nonwater quality environmental impact (including energy requirements) and other factors.

It should be emphasized that the Agency intends, in the near future, to issue additional regulations for this industry. These regulations will include advanced technology and will result in substantial further reduction in pollutants discharged by this point source category. Such technology as membrane systems, ultra filtration, sorption systems and in-process control will result in further progress toward the goal of no discharge of waste water pollutants. These systems were not extensively used in this regulation, but may be required as add-on systems in the future.

The data upon which the above analysis was performed included EPA permit applications, EPA sampling and inspections, consultant reports, and industry submissions.

(2) Summary of conclusions with respect to the pesticides chemicals manufacturing point source category.

(i) Categorization.

For the purpose of establishing effluent limitations and guidelines the pesticides chemicals manufacturing point source category was divided into five subcategories. Factors such as type of product, raw waste loads, water requirements, type of manufacturing processing, treatability of wastewaters, and others were used to establish effluent limitation guidelines for each of the specific subcategories. In general, the most significant contributing factors were manufacturing operations and treatability of wastewater based on production volume and specific water requirements.

Hence, this broad base subcategorization scheme simplifies the application of effluent limitation guidelines for a complex mix of production activity and a large number of selected chemical groupings. These categories reflect differences in the character, the volume, and the treatability of wastewater streams due to manufacturing process variables related to each grouping of chemicals.

(ii) Waste characteristics.

The known significant wastewater pollutants and pollutant properties resulting from the pesticides chemicals manufacturing include pH, total suspended solids, $BOD_5$, COD, TOC, TSS, phenol, ammonia nitrogen, metals, and pesticides.

(iii) Origin of wastewater pollutants.

Sources of wastewater pollutants from pesticides chemicals manufacturing include aqueous wastes from reactors, filtration systems, decanting systems, distillation, vacuum exhaust scrubbers, stripping systems, caustic scrubbers, process equipment cleanouts, production area washdowns, refining area washdowns, formulation equipment cleanup, and spill washdowns.

Effluent limitations for the pesticides chemicals manufacturing category pertain to wastewaters from process operations. Process wastewater pollutants were found to be proportional to the level of production. It was therefore possible to establish limitations on the basis of production. Other pollutant sources within pesticides chemicals manufacturing plans such as all utilities, labs, terminals and others are generally not related to production.

(iv) Treatment and control technology.

Wastewater treatment and control technologies have been studied for each subcategory of this industry to determine what is the best practicable control technology currently available.

The treatment models recommended to attain the levels of treatment technology required are:

BPT TECHNOLOGY LEVEL—END-OF-PIPE TREATMENT MODEL

SUBCATEGORY A

Incineration of strong organic wastes. General process wastewater is neutralized and combined with incinerator scrubber waters, passed through an oil-water separator, equalized, filtered, detoxified by carbon sorption, and treated by biological treatment and clarification. The solids from the clarifier go to a sludge thickener, followed by aerobic digestion and vacuum filtration before going to an acceptable solids disposal system.

SUBCATEGORY B

Concentrated ammonia wastes go to an ammonia stripper for ammonia recycle. Strong organic wastes are incinerated. General process wastewater goes to an oil-water separator, followed by hydrolysis detoxification combination of the wastewaters into a neutralization basin before equalization, biological treatment and clarification. The clarifier solids are thickened, vacuum filtered and sent to an acceptable solids disposal.

SUBCATEGORY C

Same as subcategory B above.

SUBCATEGORY D

No discharge of process wastewater pollutants—existing in-plant wastewater handling procedures are acceptable and already attain no discharge.

SUBCATEGORY E

No discharge of process wastewater pollutants—existing evaporation systems and/or approved land disposal systems are acceptable to handle the minimal wastes produced by exemplary operations.

The following discussion of treatment technology provides the basis for the effluent limitations guidelines. This discussion does not preclude the selection of other wastewater treatment alternatives which provide equivalent or better levels of treatment.

Good in-process control is a significant pollution abatement technique with respect to all products produced in the pesticides chemicals manufacturing category. Practices such as minimization and containment of spills and leaks, segregation of waste streams, monitoring process wastewater, water conservation and reuse, wastewater equalization and good housekeeping, and equipment maintenance are necessary to eliminate or reduce the volume of process wastewater requiring treatment.

If thermal processing (incineration) is the choice for disposal, provisions must be made to ensure against entry of hazardous pollutants into the atmosphere. Consideration should also be given to recovery of materials of value in the wastes.

For those waste materials considered to be non-hazardous, where land disposal is the choice for disposal, proper sanitary landfill technology must be followed. The principles set forth in the EPA's Land Disposal of Solid Wastes Guidelines, 40 CFR Part 241, may be used as guidance for acceptable land disposal techniques.

Best practicable control technology as known today requires disposal of the pollutants removed from wastewaters in this industry in the form of solid wastes and liquid concentrates. Some of these waste constituents are hazardous and may require special consideration, in order to ensure long-term protection of the environment. All landfill sites where such hazardous wastes are disposed should be selected so as to prevent migration of these contaminants to ground or surface waters. In cases where geologic conditions may not reasonably assure this, adequate mechanical precautions (e.g., impervious liners) should be taken to ensure long-term protection to the environment from hazardous materials. Where appropriate, the location of solid hazardous materials disposal sites should be permanently recorded in the appropriate office of legal jurisdiction. Information received during this investigation indicates that greater than 90 percent of certain halogenated organic pesticides that are released into activated sludge plants are removed by sorption onto the sludge. There are indications that the pesticides are not substantially biooxidized and are released back to the plant in the supernatant liquid from sludge digestors. This recycle may give rise to pesticide buildup and subsequent treatment plant failure allowing untreated pass through of the pesticides if adequate pretreatment is not in service as described in the model technology.

(v) Cost estimates for control of wastewater pollutants.

Capital and annual costs were computed for each subcategory on the basis of the cost per 1,000 pounds of production. Due to the complexity and degree of integration in this industry some simplifying assumptions were made in order to determine costs on a product-by-product basis. These assumptions were:

(1) That each facility in a subcategory is a discrete plant whose process wastewater is treated in a single end-of-process waste treatment system.

(2) That all wastewaters are treated by the model end-of-process treatment system regardless of the existence of less expensive and more efficient alternate disposal techniques and in-process changes which may be made.

(3) The effluent discharged is relatively independent of the product manufactured within a subcategory.

Disposal methods such as incineration or like processes are commonly used for disposal of highly concentrated and difficult wastes. In any specific case, the manufacturer can best determine the most attractive economic alternatives for in-process controls and end-of-process treatment which will meet the limitations required.

Cost information was obtained directly from industry, from engineering firms, equipment suppliers, government sources, and available literature. Costs are based on actual industrial installations or engineering estimates for projected facilities as supplied by contributing companies. In the absence of such information, cost estimates have been developed from either plant-supplied costs for similar waste treatment installations at plants making other similar chemicals or general cost estimates for treatment technology.

(vi) Potential benefits to be achieved.

The point sources in this category discharge a variety of pollutants which can seriously degrade water quality and are potential or known carcinogenic, oncogenic, mutagenic or teratogenic compounds. It is estimated that the volume of wastewaters which result from operations within this category amount to 19 billion gallons each year. Besides discharging materials which reduce the oxygen in receiving waters as a result of biological or chemical reactions, substances such as phenols, phosphorus, and oil and grease are released. Phenols have been identified as having serious human health implications at low levels. Oil and grease can cause taste and odor problems, and are extremely toxic to freshwater fish. Phosphorus is perhaps the greatest causing of premature aging of water bodies known as eutrophication. In small quantities it can stimulate plant growth to the nuisance level.

Pesticides by definition are designed to kill or repel "target organisms", which may be plant or animal, but, increasingly, it has been found that pesticides are toxic to plants and animals other than those for which they are used. The problem is, of course, particularly worrisome as it relates to animal life, and especially man. Since the end of World War II, there has been a dramatic increase in the discovery and use of chemical pesticides. Research has also disclosed that many of these pesticides, particularly organohalogen pesticides, degrade only very slowly, and have affinity for concentration in oils and fat, including human tissue. Recently it has been determined that some organohalogens are present in aquatic animals in the Arctic and Antarctic. Tests with mice and rats and other mammals have shown that some of the more widely used organohalogens have caused tumors, and several of these pesticides are detected frequently in meat and milk sold for human consumption, and in mothers' milk.

Of course, much of the pesticide pollution of the world's waters results from runoff from agricultural areas. These are non-point sources and not subject to the effluent limitation guidelines published today, but the point sources also contribute to the pollution. The most recent publicized example of the latter form of pollution is the widespread contamination of several species of aquatic life in Chesapeake Bay from the chemical known as kepone. If kepone were to be produced again, the regulations published today would have placed limitations on kepone releases far more stringent than those that were applicable when the contamination was occurring. While these regulations obviously will not avoid the environmental degradation which has already resulted from endrin, kepone, aldrin/dieldrin, DDT, toxaphene, and other notable pesticide pollution examples, it will impede discharges of the thousands of other pesticides; it may well avoid recurrences of the more infamous pollution episodes, and it will reduce the day-to-day release into the aquatic environment (and human food chain) of manmade chemicals.

While the technology used to determine achievable pollution reduction for this category does not directly address the above named toxic pollutants and others present in the waste stream, it is well known that use of this technology will bring about general reduction of the level of these toxicants in the waste streams. The benefits to be achieved by compliance with these regulations are especially noteworthy in view of the relative ease with which the pollution reduction can be achieved.

(vii) Energy requirements and nonwater quality environmental impacts.

The major nonwater quality consideration which may be associated with in-process control measures is the use of alternative means of ultimate disposal. As the process raw waste load (RWL) is reduced in volume alternate disposal techniques become more attractive. Recent regulations are tending to limit the use of ocean discharge and deep-well injection because of the potential long-term detrimental effects associated with these disposal procedures. Incineration is a viable alternative for concentrated waste streams. Associated air pollution and the need for auxiliary fuel, depending on the heating value of the waste, are considerations which must be evaluated on an individual basis for each use.

Other nonwater quality aspects, such as noise levels, will not be perceptiby affected. Most chemical plants generate fairly high noise levels within the battery limits because of equipment such as pumps, compressors, steam jets, flare stacks, etc. Equipment associated with in-process or end-of-pipe control systems would not add significantly to these levels.

Energy requirements associated with treatment and control technologies in the

wastewater treatment model are very small compared to the total energy requirements for most plants.

(viii) Economic and inflationary impact analysis.

The Agency has evaluated the economic effects of these regulations in terms of the internal costs to the manufacturers and the external economic costs. Internal costs given in 1976 dollars are defined as investment and annual costs, where annual cost is composed of operating costs, maintenance cost, the cost of capital, and depreciation. External cost deals with the assessment of the economic impact in terms of price increases, curtailments in production, and plant closures.

The investment and annual costs were determined by running estimates of the incremental compliance costs for the individual plants affected by the regulations. Four direct discharging plants out of the 32 plants producing halogenated organic pesticides could incur an aggregate investment cost of $15.2 million with annual costs amounting to $4.5 million. Ten plants manufacture organo-phosphorus pesticides of which 1 will incur treatment costs. This plant would have estimated annual costs of $0.7 million with an investment of $2.0 million. The organo-nitrogen pesticides segment consists of 24 plants of which 1 plant will need additional treatment. It would incur investment costs of approximately $8.1 million and annual costs of $1.9 million. There are 6 plants producing metallo-organic pesticides with 1 direct discharging plant requiring an investment of $0.3 million and annual costs of $0.2 million. Most of the plants producing pesticides do not produce pesticides in just one of the subcategories. Approximately 56 plants are of this type with 5 of these requiring additional treatment. This group of plants would require an investment of $7.7 million and annual costs of $2.9 million. There are, thus, a total of 128 plants producing pesticides with 12 of these being affected. The pesticide industry could have investments costs for pollution control equipment of $33.2 million. The annual costs associated with this treatment equipment are estimated to be $10.2 million. No plants that are exclusively formulators have been identified as direct dischargers, so it is estimated that the aggregate compliance costs for formulators are negligible.

The external economic effects of these regulations were first analyzed through the use of 18 model pesticides. They were selected to represent the 1,500 various pesticides with respect to price, competitive conditions, and the crop-pest application. While analyzing these factors it was assumed that a plant producing the pesticide would have no pollution treatment installed and would have to install the complete system. Using this assumption causes an estimate of the maximum potential impact. Nine of the products are considered to have low levels of economic impacts where the treatment costs would be no more than 2.2 percent of the selling price of the product. Plants having products similar to these would have little difficulty in maintaining profitability and current production levels. Seven of the pesticides have a potential for reducing a plant's profits, causing price increases, and some curtailment in production. Price increases would be no more than 14 percent. Two of the model pesticides studied had the potential of being discontinued by a plant, since the products were meeting heavy competition in the market place.

As estimated treatment costs for the individual plants became available, additional analysis became possible. Through consideration of these more detailed cost estimates, it was determined that the majority of plants either currently meet the effluent limitations or will need to install less than half of the complete treatment system. Only a few plants will need to install most of the system. This additional analysis allows several conclusions to be made regarding the likely economic effects of the regulations. It is expected that these 12 direct discharging plants will install the necessary equipment. For most of the products any changes in price or production levels would be insignificant. For those few plants that must install a fairly large portion of treatment equipment there remains the possibility of substantial price increases and curtailment of production, of certain low priced pesticides. The aggregate impact on formulators is expected to be small, since no direct dischargers have been identified. The analysis has not been performed for an individual formulator.

Executive Order 11821 (November 27, 1974) requires that major proposals for legislation and promulgation of regulations and rules by agencies of the executive branch be accompanied by a statement certifying that the inflationary impact of the proposal has been evaluated. The Administrator has directed that all regulatory actions that are likely to result in (1) annualized costs of more than $100 million, (2) additional costs of production more than 5% of the selling price, or (3) an energy consumption increase equivalent to 25,000 barrels of oil per day will require a certified inflationary impact statement. The analysis indicates that the total investment required to meet these regulations is $33.2 million with an annual cost of $10.2 million. The costs as a percent of selling price are generally no more than 2.2 percent of the selling price, however, it is possible that for certain low cost products the costs may exceed 5 percent of selling price. The limits presented in the Administrator's criteria may then be exceeded due to these regulations. It is hereby certified that the economic and inflationary effects of this proposal have been carefully evaluated in accordance with Executive Order 11821.

## APPENDIX C

### SUMMARY OF PUBLIC PARTICIPATION

Prior to this publication, the agencies and groups listed below were consulted and given the opportunity to participate in the development of effluent limitation guidelines proposed for the pesticides chemicals industry manufacturing category. All participating agencies have been informed of project developments. An initial draft of the Development Document was sent to all participants and comments were solicited on that report. The following are the principal agencies and groups consulted: Effluent Standards and Water Quality Information Advisory Committee (established under section 515 of the Act); all State and U.S. Territory Pollution Control Agencies; Academy of Pharmaceutical Sciences; Reichhold Chemical, Inc.; Chemware-Champion; National Institutes of Health; H. B. Fuller Company; Union Camp Corporation; Naval Facilities Engineering Command; Olin Corporation; Mobay Chemical Corporation; Monsanto Company; Shell Chemical Company; Stauffer Chemical Corporation; Union Carbide Corporation; Bell and Howell, Inc., Micro Photo Division; MTS Chemicals; Hercules, Inc.; Rohm and Haas Company; Defense Mapping Agency; Pfizer, Inc.; CIBA-GEIGY Corporation; U.S. Army Audio Visual Activity; U.S. Department of Health, Education, and Welfare; E. I. DuPont de Nemours and Company; Allied Chemical Corporation; Pepsi Company; Western Agricultural Chemicals Association; Tennessee Eastman Company; Cabot Corporation; CPAC Company; Diamond Shamrock, Inc.; American Cyanamide Corporation; EPAC; Lederle Laboratories; National Ecological Research Center; Office of Pesticides; Dow Chemical Company; National Association of Pharmaceutical Manufacturers; Abbott Laboratories; Eastman Kodak Company; BASF Wyandotte Corporation; Ohio River Valley Sanitation Commission; The Conservation Foundation; Businessmen for the Public Interest; Environmental Defense Fund, Inc.; Natural Resources Defense Council; American Society of Civil Engineers; Water Pollution Control Federation; National Wildlife Federation; Kimberly Clark Corporation; National Pest Control Association; U.S. Army Corps of Engineers; Carbon Adsorption Systems; AFWL Environics; WSME; Institute of Makers of Explosives; Pulp Chemical Association; American Carbon Committee; American Hospital Association; Bureau of Explosives, Association of American Railroads; United Pesticides Formulation and Distribution Association; Technical Association of Pulp and Paper Industry; Professional Photographers of America, Inc.; Adhesive and Sealants Council; Smith, Bucklin, and Associates, Inc.; Photo Marketing Association; Carbon Black Producers Traffic Committee; Arundale, Inc.; Enviroengineering, Inc.; U.S. Army Environmental Hygiene Agency; American Defense Preparedness Association; The Fertilizer Institute; National Agricultural Chemicals Association; Walden Research; American Pharmaceutical Association; Pharmaceutical Manufacturers Association; Manufacturing Chemists Association; National Microfilm Association; New England Intertsate Water Pollution Control Commission; American Society of Mechanical Engineers; American Medical Association, Public Health Division; U.S. Water Resources Council; U.S. Department of Defense; U.S. Department of Interior; Atlas Powder Company; U.S. Department of the Army; National Association of Photographic Manufacturers; M&T Chemicals, Inc.; FRP Company; Swift Chemical Company; Roberts Consolidated Industries; Eli Lilly and Company; Merck and Company, Inc.; and Parke, Davis and Company.

It should be noted that some of the recipients of the contractor draft documents are from areas of interest outside the manufacturing activities covered in this regulation. This situation results because eight industries were being handled as one administratively within the project called miscellaneous chemicals.

The following organizations responded with comments for the pesticides chemicals manufacturing point source category: EPA, Office of Enforcement; EPA, Office of Planning and Evaluation; Effluent Standards and Water Quality Information Advisory Committee; M&T Chemical, Inc.; Union Carbide Corporation, Chemicals and Plastics; Rohm and Haas Company (NACA); Mobay Chemical Corporation, Chemagro Agricultural Division; and E. I. DuPont de Nemours and Company.

The primary issues raised by commenters during the development of the interim final effluent limitations and guidelines and the response to these comments are as follows:

1. Several commenters suggested that the subcategories are too broad.

The Agency has reexamined this comment and has further subcategorized the industry. For example, the s-triazines are separated from consideration with other organo-nitrogen compounds. This subcategorization is based on a difference observed in the treatability of the waste products arising from the manufacture of this type of organo-nitrogen compound. The organo-metallic compounds have been subcategorized into two groups. Examination of the organo-phosphorus subcategory and the halogenated

organics subcategory did not reveal a need for further subcategorization. The Agency has found that the quantity of pesticides released from these two subcategories should not be affected by the products manufactured inasmuch as the in-process control required for detoxification prior to subsequent treatment by a biological system should result in essentially the same quantities of pollutants being discharged after treatment using the model systems described in the development document. Subcategorization tending toward an individual product/process classification was deemed inappropriate by the Agency for an industry in which a large proportion of the products are proprietary.

2. A commenter pointed out that variations in terrain and climate can grossly affect the cost or capabilities of biological systems and, if not used to categorize, should at least be acknowideged in terms of cost or performance ranges.

Variations in terrain and climate will not, in the Agency's judgment, affect t he operation of the in-process detoxification units employed in the model treatment systems. Neither will they affect the equalization systems included in the model treatment. Cost estimates outlined in the development document more than adequately allow for variations in design requirements. These design variations easily accommodate variations in treatability as a result of varying climatic conditions.

3. It was suggested that the use of raw waste load data fails to recognize that subcategory raw waste load is an average of widely ranging values.

Raw waste load data obtained from the industry was used to characterize typical raw waste loads as a function of production rates. The regulations are not directly established from a particular raw waste load although these raw waste loads are used in the derivation of model treatment systems and cost evaluations. The raw waste load data were used to demonstrate that, within a category, the raw waste load produced is relatively independent of the product produced and is related to the quantity of pesticides produced. The regulations themselves were then established with reliance on demonstrated obtainable discharge loads from existing industrial treatment systems or by calculation of expected discharge values which would be obtained by point sources in this industry if the model treatment systems were installed and operated in those cases where the complete model technology was not available at single sites.

4. The interpretation of Table VII–2 in the development document is made difficult by the lack of listing of influent loadings. BOD5, TSS and flow data are not consistent with the recommended limitations.

The original contractor's draft development document has been completely revised with the inclusion of a substantial quantity of newly acquired data obtained from industrial operations.

5. A commenter observed that the following statement is not documented in the report: "• • • the end of pipe models are capable of attaining the recommended effluent limitations at the RWL's within subcategories of each industry."

The original contractor's draft development document has been revised and modified. The Agency feels that the limitations can be met by installation and operation of treatment systems equivalent to the model technology presented in the development document, or by reasonable modification of existing systems to be equivalent to the model system. Each subcategory has demonstrated examples of plants that can meet the regulations, and the Agency has made an effort in the development document to point out needed alterations of those plants which are not currently operating at the required level of treatment.

6. The operation temperature, and kinetic data for the aeration basin design basis are extremely important to a review and should be furnished.

The temperature ranges and kinetic data used for the design basis for cost calculations are the temperature ranges and kinetic rates normally found in the treatment of organic chemical wastes. The specific temperature and kinetic rate will be different at each installation. The Agency did not deem it necessary or desirable to calculate for each particular operating installation a kinetic rate equation. Inasmuch as both the individual treatability of wastes at individual plants and the mode of treatment are somewhat different, the kinetic rate will also be different. It is standard engineering practice to determine treatability of waste prior to design of a biological treatment plant and it is expected that each site would do so. Explication of site specific design is not the purpose of the development document.

7. It was pointed out that there was a discrepancy between raw waste loads presented in Section V and Section VIII of the development document.

The original contractor's document has been revised and a substantial amount of new data has been included which was obtained from the industry. The original presentation has been revised.

8. Congressional intent was interpreted from the legislative history of P.L. 92–500 to indicate that BPT was to be based on end-of-pipe systems.

The Agency's interpretation of the Congressional intent as confirmed by a number of Court decisions during the interim period is that in-plant modifications and in-plant control to reduce raw waste loads are expected when practiced generally by the industry. The in-plant modifications and in-process control systems presented in the development document are in fact detoxification units which render the waste loads biologically treatable and are generally applied throughout the industry. The carbon sorption systems for the halogenated organic subcategory and the hydrolysis systems for the organo-phosphates and organo-nitrogen subcategories are the most frequently used detoxification systems. Other systems are occasionally used and are presented in the document. Implementation of these detoxification units renders the discharges from the in-process treatment after equalization readily biodegradable by normal biological treatment systems. It is the Agency's position that these complementary in-process treatments are required in order to attain the BPT levels.

9. A commenter pointed out that the statement that high COD, BOD5 ratios observed for raw waste loads are not exhibited by biologically treated effluents is not verified by the data presented in Table VII–2.

COD to BOD5 ratios for raw waste loads do vary considerably as pointed out in the development document, probably as a result of toxic responses caused by the nature of the wastewaters involved. However, an analysis presented in the revised development document of the ratio of COD to BOD for biologically treated effluents does not indicate same large variable ratios.

10. One industry representative observed that although BOD5 may not be usable for derivation of limitations due to influent toxicity, it should still be possible to use COD or TOC.

COD is included as a limiting parameter. TOC is not included at this time as a limiting parameter because EPA's data base would not allow adequate development of a regulation incorporating TOC. The Agency has incorporated BOD and COD as limiting parameters because they represent two different features of the oxygen demanding discharges. BOD represents the adequacy of treatment for readily biodegradable materials while COD represents the extent to which the oxygen demanding materials have been reduced by the combination of in-process detoxification units as well as the biological treatment systems required. TOC may in the future be included as an alternate to one or both of the above parameters. The existing data base does not allow a suitable calculation for a limit on TOC in this particular point source subcategory.

11. The opinion was expressed that the BOD5 and TSS levels indicated in Section IX are not demonstrated and do not favorably agree with cited data.

Substantial new data has been incorporated from a reinvestigation of the industry supplied data base and includes a substantial quantity of both BOD and suspended solids data. These data have been incorporated into the development document. The regulation is at this time in close agreement with the observed performances cited in the development document.

12. The performance of end-of-pipe treatment systems for the Pesticides and Pharmaceutical industry are not similar as stated in the development document. Pesticides has more stringent requirements and would be expected to need a higher variability.

The Agency has, as a result of the reexamination of this industry, accepted this comment. The variability basis for the pesticides point source subcategory has been revised to reflect variability calculations obtained from long-term data from operating systems within the pesticides point source subcategory.

13. A commenter suggests that as the data base is insufficient, EPA should seek additional data from industry.

The Agency has sought additional data from industry and in fact has gathered a substantial quantity of new data from the industry. These data have been incorporated into a revision of the development document and the Agency considers that the data base is adequate to advise just and equitable regulations. The Agency continues to seek data from the industry, particularly in those subcategories that have been reserved in these regulations and for additional parameters which are expected to be proposed by amendment in the near future.

14. A commenter suggested that biological treatment will handle many, if not most of pesticide wastes in spite of their claimed toxicity to the treatment system.

Biological treatment is recommended for the treatment of pesticide wastewaters in combination with suitable equalization systems to render the biological treatment system more efficient, and in combination with an in-process detoxification system from each pesticide line. The omission of suitable in-process detoxification or the lack of inclusion of equalization gives rise to widely variable and inefficient biological treatment as is demonstrated by the data obtained by the Agency on operating treatment systems.

15. One company suggests that because of the wide range of compounds considered and the paucity of data available, it is impossible to set effluent limitations for COD.

Examination of the data available suggests strongly that the parameter most frequently measured and relied upon by industry itself is COD. The broadest data base that the industry was able to supply to the Agency was

COD data. The Agency has incorporated COD as a parameter because of its availability in the data submitted and because it is such a useful tool for control of the treatment systems employed. Correlations have been determined to show the relationship between BOD and COD in the treated effluent.

16. Phenol is difficult to bring below the 0.03 mg/l suggested effluent concentration and the BAT guidelines could be more restrictive on "phenol" since carbon adsorption is an effective method of phenol removal.

Phenol is not a restricted parameter except in subcategory A in which carbon sorption is a part of the model technology.

17. The technology is not available to meet the phosphorous standard suggested in the document.

The revised version of the development document does not recommend that a total phosphorous limitation be established. The Agency found insufficient demonstration of phosphorous removal in this industry to warrant establishing a limitation at this time for this parameter. The Agency did not choose to attempt to transfer technology from treatment of other types of waste waters. It is however, pointed out that phosphorous can in fact be a substantial problem in this industry's discharges and may give rise to water quality related problems. This parameter should be controlled by local regulatory authorities on a case by case basis as dictated by water quality needs. It is the intent of the Agency to amend these regulations as soon as a reasonable data base can be obtained for control of this parameter.

18. Several commenters suggested that TKN limitations should not be set because the proposed treatment technology will not remove sufficient TKN and a practical technology is not thought to exist. It is suggested that because most of the wastes studied contain substantial quantities of NH3–N, the contractor should limit NH3–N rather than TKN.

This comment was accepted by the Agency and the parameter limited in these regulations is ammonia nitrogen. The treatment models have been modified to include cost calculations reflecting the addition of ammonia strippers to the model technology suggested for the affected subcategories.

19. There is no need to regulate Cn since it will be controlled by section 307(a) of Pub. L. 92–500.

The requirements under which these regulations are set forth are different than requirements for section 307(a) regulations. The Agency calls to the attention of applicable regulatory authorities that cyanide may be present in a harmful quantity in the discharges from these point sources. It is not included as a parameter in these regulations, but is expected to be included by amendment in the near future.

20. Some of the metals mentioned in Section VI are not detectable to 0.02 mg/l. The effluent limitations should list the metals of concern and be sure the limits involved are applicable.

Certain of the sources of metals, namely the metallic-organic pesticides, have been reserved at this time and the Agency expects to amend these regulations in the near future to include coverage of those reserved metallic-organic pesticides. At that time specific limits on specific metals may also be included.

21. An industrial representative pointed out that the methodology used in developing these limitations is not consistent with that utilized in the development of previous limitation where limitations were drawn up for individual products and processes: e.g., PVC, polypropylene, and phenol. The latter method is superior to the one used for pesticides.

The methodology used in development of this regulation was outlined in response to a previous comment in which it was pointed out that it was not deemed appropriate for this point source category to use a product/process approach because of the predominance of proprietary products in this industry. That approach would lead to confirmation by the Agency that whatever load is being discharged from an individual product line is the acceptable load in the absence of comparable loads from other producers of the same product. This approach would not lead to a substantial reduction of pollution as our charge from Pub. L. 92–500 requires. For that reason, the Agency has adopted a methodology which will require and maintain an incentive to reduce the discharge of pollutants from the manufacture of pesticides and an inducement to maintain low discharges that would result from introduction of additional pesticide production onto existing production lines.

22. The limitation guidelines are determined in terms of waste per unit of production of final product. Since there is a wide variation in the number of intermediates in the pesticides industry, the unit of production should include these intermediates.

It was not feasible to address the problem of a load created by production of intermediates at one manufacturing site while a second production site may buy intermediates to produce the same product. The Agency will cover most of the intermediate production under the organic chemicals guidelines and other applicable guidelines. This regulation is directed toward the manufacture of the active ingredients. It does not cover the production of intermediates on the same site.

23. The RWL definition needs further refinement. The RWL should have been utilized in the formulation of the guidelines.

The raw waste load has been further defined in the revised development document with the addition of a substantial quantity of newly acquired data. The raw waste load alone is not the base for these regulations. The demonstrated achievable level of treated effluent from systems incorporating the model treatment systems was the major base. Calculations can be made to determine the reductions required to be obtained if desired. The Agency has determined that the raw waste loads rarely exceed a level which can be reduced by the model treatment technology to the required limitations.

24. A goal of 92–95 percent BOD reduction of RWL should be used rather than a concentration criterion in setting guidelines.

Establishing a required percent reduction as applied to variable raw waste loads does not lead to equitable regulations or create an economic incentive to reduce the pollutants discharged in this point source category. The use of a standard percent reduction tends to reward those dischargers who have done the least to reduce their raw waste loads and penalizes those who have done the most to reduce their raw waste loads. The Agency does not accept the proposition that standard percent reduction is an equitable approach to establishing regulations for this industry.

25. The contractor's brief discussion of the role of phosphorus as a nutrient in the environment is totally inadequate as a justification for the recommended effluent limitation.

This section of the development document has been substantially revised and this parameter is not a limited parameter at this time. It is expected that these regulations will be amended in the near future to include a phosphorus limitation for this point source subcategory. This amendment will include a suitable description of both the available technology and need for the limitation.

26. There are problems associated with the "building block" approach used by the contractor. Wastewater treatability efficiency from a product line is sometimes reduced when combined in a treatment system. The biodegradability of the effluent from pesticides may be hard to predict when combined with other effluents prior to treatment.

The building block approach demonstrated in the revised development document is based upon a substantially expanded data base and is based upon demonstrated achievement of the required levels in multiproduct plants where successful treatment is being practiced. There is no indication that the mixed waste cannot be adequately treated to reach the limitations proposed herein. In those few exceptional cases where it was not possible to demonstrate the treatability, the Agency has reserved coverage, pending documentation of treatability. This is true of certain of the metallic-organic products and of the s-triazine products of the organo-nitrogen subcategory.

27. One commenter advised that a significant raw waste load will be generated by some formulation and packaging processes.

While it is recognized that certain formulation and packaging plants do generate a significant raw waste load, an extensive study by the contractor has verified that this need not be the case. A minimum of 50 formulating and packaging plants were located, processing all types of pesticide formulations in all climatic regions, which had no discharge of process wastewater. Representatives of these plants commented that it was more economical to design and to control their operations in such a manner as to eliminate a need for a discharge than it was for them to attempt treatment of a wastewater discharge. Not only was the lack of a need for a discharge demonstrated, but the absence of a discharge actually improved the efficiency of operation and the cost of operation of their formulating and packaging plants. The Agency did not find a demonstrated need in this industry for an allowance for a discharge from formulation and packaging.

28. A commenter observed that saying that waste loads are low enough to package and send to contract waste disposers only naively transfers the problem and unjustifiably dictates methods of operation.

Contract land disposal is a frequently utilized practice in this industry where very low flows are predominant. The suggestion that a plant may indiscriminately transfer its problem is not valid. The Agency suggests that use of a suitable contract disposer will transfer responsibility for good operation to that operator. Public Law 92–500 and its legislative history encourage the use of cooperative or joint disposal practices. The Agency endorses this policy when it is a more economical or more reliable system for handling specific wastes. If the contract disposal operator attempts to discharge wastes into navigable waters, it of course is subject to the FWPCA. The Agency supports, as is outlined in the revised development document, the elimination of the waste loads in formulating and packaging as a more desirable alternative.

29. A commenter agrees that the choice of raw material is not a factor for subcategorization, but feels that it should be considered as a variable in setting flexible guidelines.

The Agency does not feel that setting flexible guidelines is an equitable approach in establishing guidelines and limitations. Adequate allowance is made for a variance by other sections of these regulations. The contractor's study indicated that the waste loads

generated in the manufacturing portion of this industry were not related to the specific raw materials utilized in the process.

30. The use of BOD5 data to develop RWL is more meaningul if an acclimated seed is developed for each process. BOD5 should be the parameter used to develop BPT limitations wherever possible.

The BOD5 data used in the development of these regulatioans are data developed by the industry using seed acclimated to their waste. It is the Agency's position that BOD5 should be a parameter of control. Local and regional regulatory authorities normally use BOD5 as the data base for development and enforcement of water quality restrictions.

31. COD as an independent control parameter is not justified because it does not indicate the harm that non-biodegradable elements in the waste may cause to receiving streams.

The Agency accepts COD as an independent control parameter because it is an efficient, fast, and relatively inexpensive measure of the extent of the reduction of oxygen demanding pollutants. It is the most frequently used control parameter for operation of treatment facilities and forms the most complete data base available to the Agency.

The incorporation of both BOD5 and COD gives one the ability to measure both the rate of biological degradation obtained as well as the extent of biological degradation obtained in the biological treatment plant. Elimination of either fails to give a complete description of the treatment which was obtained by the recommended treatment process models. Incorporation of the relatively inexpensively determined control parameter will allow a decrease in the frequency of measurement of the more expensive BOD5 test.

32. The cost analysis ignores factors such as sewer segregation, repiping and upgrading in old plants, as well as monitoring equipment.

The cost model system adopted by the Agency does not include site specific items such as sewer segregation and repiping. The majority of the plants manufacturing pesticides presently have some level of treatment installed and are in compliance with NPDES permit limitations. This industry is a relatively new industry, and most plants were designed with specific collection systems at the time of plant construction. A few plants were not designed in this manner and the Agency recognizes that the impact upon a few specific plants may be somewhat higher than the average economic impact on the industry as a whole. It was not possible to examine the cost at every possible installation.

33. Detoxification is not shown on the flow sheets, but is often required for insecticides.

A detoxification system is carefully outlined in the revised development document. It is expected to be necessary in all of the manufacturing subcategories and it has been included in the cost models.

34. Toxicity, odors, and excessive fuel costs will result in EPA requiring concentration of wastes before incineration.

These limitations do not require a specific treatment system. A model system was developed to serve as a basis for development of cost information and to demonstrate that the limitations are attainable within that cost. The revised development document does not imply that wastes should be concentrated prior to incineration; rather, it suggests that those wastes that are generated in concentrated streams should be maintained in that concentrated state and that it is uusally more economical to incinerate highly concentrated wastes than it is to dilute them for treatment by other means.

35. The apparent BOD5 removal efficiency will be lower than actual efficiency if the influent BOD5 measurements are inhibited by toxic effects. The problem can be overcome by consideration of TOC or COD.

COD has been made a limiting parameter in this regulation. The incorporation of both COD and BOD5 helps to avoid the very problem that the commenter has pointed out.

36. Dependence upon flow as an effluent guideline is questionable because of varying amounts of water required by different processes, by geographical location and by differing plant age.

These limitations were not established on the basis of flow determinations. Flow was incorporated in the calculation of cost of treatment and economic analysis but is not restricted by the limitations. The limitations are based on mass discharges achieved by plants which include model treatment systems.

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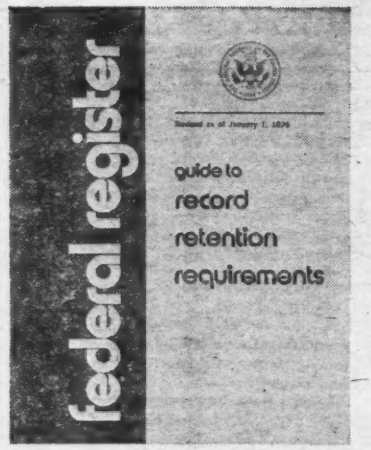
# Guide to Record Retention Requirements

[Revised as of January 1, 1976]




This useful reference tool, compiled from agency regulations and U.S. Statutes, is designed to assist industry and the public with their recordkeeping obligations.

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